REMARKS

I. Formal Matters

Claims 1 and 4 are herein cancelled. Claim 3 is adjusted to depend from claim 2. Claim 2 is amended to make explicit that which was implicitly claimed and previously reflected in Fig. 3. Dependent claim 7 is added and supported by Fig. 3 of the drawings and by the 4th paragraph of page 12 of the specification. No new matter has been added.

II. Prior Art Rejections - 35 U.S.C. § 103

A. Claim 2

The Examiner rejected claims 2 and 5 under 35 U.S.C. 103(a) as allegedly being unpatentable over Glance (U.S. Patent No. 5,566,014) in view of Glance (U.S. Patent No. 5,493,625) and Glance (U.S. Patent No. 5,461,685).

Optical Connection Requirement

Herein amended claim 2 requires, *inter alia:*

> optical switches for selectively connecting any i^{th} output port of said demultiplexer, for i from 3 to N, to one of the $(i-1)^{th}$ input port of said multiplexer, the i^{th} input port of said multiplexer, and the $(i+1)^{th}$ input port of said multiplexer

Regarding this 'optical connection requirement' of claim 2, the Examiner indicated that Glance '014 teaches "optical switches (reference numeral 16 in Figure 2) for selectively connecting any i^{th} output port of said demultiplexer, for i from 3 to N, to the $(i-1)^{th}$ port of said multiplexer, or to the i^{th} input port of said multiplexer (e.g.connecting the 3rd output port of the demultiplexer to the 3rd input port of the multiplexer via switch 16c in Figure 2), or to the $(i-1)^{th}$ **[sic]** input port of said multiplexer". (Office Action, page 4).

When i = 3 as used by the Examiner, Glance '014 only teaches connecting the 3rd output port of the demultiplexer to the 3rd input port of the multiplexer. (*See* Fig. 3). Glance '014, however, does not selectively connect the 3rd output port of the demultiplexer to the 2nd and 5th input ports of the multiplexer as claim 2 would require for i = 3. Moreover, Glance '014 fails to

meet this 'optical connection requirement' for any values of i listed in claim 2. Therefore Glance '014 fails to teach or suggest "optical switches for selectively connecting any i^{th} output port of said demultiplexer, for i from 3 to N, to one of the $(i-1)^{th}$ input port of said multiplexer, to the i^{th} input port of said multiplexer, and to the $(i+1)^{th}$ input port of said multiplexer" and claim 2 is not rendered obvious.

Second Input Requirement

Claim 2 also requires, *inter alia:*

> a demultiplexer having at least two input ports for receiving two wavelength division multiplexes consisting of N channels, and at least N+2 output ports...and for any value of i from 3 to N+2, said i^{th} output port of said demultiplexer is adapted to receive the $(i-2)^{th}$ frequency of the second multiplex received at said second input port...

Additionally, regarding the demultiplexer of claim 2, the Examiner indicated that "Glance ('014) differs from the claimed invention in that it fails to specifically teach a demultiplexer with N+2 outputs wherein for any value of i from 3 to N, said i^{th} output port of said demultiplexer is adapted to receive the (i-2)th frequency of the second multiplex received at said second input port...In another Glance Patent ('685), a demultiplexer with N+2 output port is disclosed and is clearly capable of being adapted to allow for any value of i from 3 to N, said i^{th} output port of said demultiplexer is adapted to receive the (i-2)th frequency of the second multiplex received at said second input port." (Office Action, page 4).

Because of the deficiency in Glance '014, the Examiner applied Glance '685 which has a demultiplexer 30 with one input and N+2 outputs in Fig. 6. Regarding the second multiplex received at the second input port of the demultiplexer, Glance '685 teaches that the first frequency of the second input is routed to the second output of the demultiplexer and that the remaining consecutive frequencies are routed to the consecutive remaining outputs. (*See* Fig. 2b

and col. 3, lines 4-12[1]). In other words, the second multiplex signal at the second input port of the demultiplexer routes its first frequency one output level below the first frequency of the first input of the demultiplexer. (*See* Figs. 2a and 2b). That is, the first input starts at the first output of the demultiplexer and the second input starts at the second output of the demultiplexer. Glance '685, however, fails to teach or suggest "for any value of i from 3 to N+2, said i^{th} output port of said demultiplexer is adapted to receive the $(i-2)^{th}$ frequency of the second multiplex received at said second input port".

In a similar manner, Glance '614 teaches away from the claim requirement because it teaches "the output ports 1, 2, 3-N demultiplex the frequencies FN, F1, F2 - FN-1 respectively when the incoming WDM signal is applied to the second input of the WGR. Accordingly, the frequency order of the demultiplexed components permutes (shuffles) by one unit each time the WDM incoming signal is fed to a successive input port. Consequently, the order in which the frequency components are demultiplexed among the N outputs depends on the input to which the WDM signal components are fed." (col. 3, lines 28-37). That is, information from the second input port is shifted down by one output level at the output port of the demultiplexer.

Since Glance '014 and '685 shift the frequency output of the demultiplexer down by one when routed from the second input of the demultiplexer, both Glance '014 and '685 teach away from claim 2 and do not meet the 'second input requirement'. The combined references Glance '014 and '685, along with Glance '625 applied for its teaching regarding a multiplexer, do not anticipate the claims. Therefore the Examiner's argument that the 'second input requirement' of the demultiplexer is met by Glance is not supportable.

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[1] Glance '685 col. 3, lines 4-12: "Fig. 2b illustrates the manner in which an optical signal is demultiplexed if it is directed to the second input waveguide 16_2 rather than the first input waveguide 16_1. In this case frequency F_1 will be directed to output waveguide 18_2, frequency F_2 will be directed to output waveguide 18_3, frequency F_3 will be directed to output waveguide 18_4, and ..."

Because the combined references do not meet the 'optical connection requirement' nor the 'second input requirement' of claim 2, Applicant respectfully requests the Examiner to withdraw this rejection of claim 2 and its dependent claims 3-6.

B. Claim 6

The Examiner rejected claim 6 under 35 U.S.C. 103(a) as being unpatentable over Glance (U.S. Patent No. 5,566,014), Glance (U.S. Patent No. 5,493,625), and Glance (U.S. Patent No. 5,461,685) in view of Glance (U.S. Patent No. 5,434,937).

The Examiner applied Glance '937 for an optical amplifier. (Office Action, page 5). Glance '014 teaches use of 2X2 optical switches; however, one skilled in the art would not use a 2x2 optical switch. If the switches used are thermooptic switches, the operating speed is limited and for some switches of this type, it is not possible to select frequency coded information in less than a few nanoseconds. (*See* Specification page 4, lines 8-12).

"To produce a 2x2 switch based on optical amplifiers, it is necessary to use four active components, as against only two for a thermo-optical switch...[and further,] if a fast solution is implemented based on optical amplifiers, it is necessary to provide 4N active components, which represents a penalty in terms of power consumption" (Specification page 4, lines 14-19).

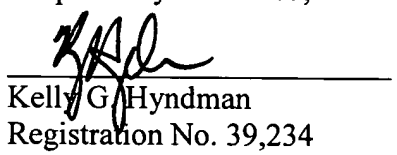
Applicant submits that there is no motivation to combine the applied Glance references to meet claim 6. Applicant therefore respectfully requests the Examiner to withdraw this rejection of claim 6.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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